

# SEQUENCE LISTING

<110> Estell, David  
Harding, Fiona

<120> PROTEINS PRODUCING AN ALTERED IMMUNOGENIC RESPONSE AND  
METHODS OF MAKING AND USING THE SAME

<130> GC527C2

<140> US 09/677,822

<141> 2000-10-02

<150> US 09/500,135

<151> 2000-02-08

<150> US 09/060,872

<151> 1998-04-15

<160> 240

<170> PatentIn Ver. 2.1

<210> 1

<211> 1495

<212> DNA

<213> Bacillus amyloliquefaciens

<220>

<221> mat\_peptide

<222> (417)..(1495)

<220>

<221> CDS

<222> (96)..(1244)

<220>

<221> misc feature

<222> (582)..(584)

<223> The nnn at positions 582 through 584 which in a preferred embodiment (aat) is to code for asparagine, but which may also code for proline.

<220>

<221> misc feature

<222> (585)..(587)

<223> The nnn at positions 585 through 587 which in a preferred embodiment (cct) is to code for proline, but which may also code for asparagine.

<220>

<221> misc feature

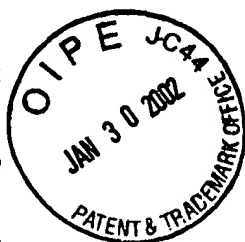
<222> (597)..(599)

<223> The nnn at positions 597 to 599 which in a preferred embodiment (aac) is to code for asparagine, but which may also code for aspartic acid.

<220>

<221> misc feature

<222> (678)..(680)



<223> The nnn at positions 678 through 680 which in a preferred embodiment (gca) is to code for alanine, but which may also code for serine.

<220>

<221> misc\_feature

<222> (681)..(683)

<223> The nnn at positions 681 through 683 which in a preferred embodiment (tca) is to code for serine, but which may also code for alanine.

<220>

<221> misc\_feature

<222> (708)..(710)

<223> The nnn at positions 708 through 710 which in a preferred embodiment (gct) is to code for alanine, but which may also code for aspartic acid.

<220>

<221> misc\_feature

<222> (711)..(713)

<223> The nnn at positions 711 through 713 which in a preferred embodiment (gac) is to code for aspartic acid, but which may also code for alanine.

<220>

<221> misc\_feature

<222> (888)..(890)

<223> The nnn at positions 888 through 890 which in a preferred embodiment (act) is to code for threonine, but which may also code for serine.

<220>

<221> misc\_feature

<222> (891)..(893)

<223> The nnn at positions 891 through 893 which in a preferred embodiment (tcc) is to code for serine, but which may also code for threonine.

<220>

<221> misc\_feature

<222> (1167)..(1169)

<223> The nnn at positions 1167 through 1169 which in a preferred embodiment (gaa) is to code for glutamic acid, but which may also code for glutamine.

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ttattctgca aatgaaaaaa aggagaggat aaaga atg aga ggc aaa aaa gta 113  
Met Arg Gly Lys Lys Val  
-105

tgg atc agt ttg ctg ttt gct tta gcg tta atc ttt acg atg gcg ttc 161  
Trp Ile Ser Leu Leu Phe Ala Leu Ala Leu Ile Phe Thr Met Ala Phe  
-100 -95 -90

ggc agc aca tcc tct gcc cag gcg gca ggg aaa tca aac ggg gaa aag 209  
Gly Ser Thr Ser Ser Ala Gln Ala Ala Gly Lys Ser Asn Gly Glu Lys  
-85 -80 -75 -70

aaa tat att gtc ggg ttt aaa cag aca atg agc acg atg agc gcc gct	257
Lys Tyr Ile Val Gly Phe Lys Gln Thr Met Ser Thr Met Ser Ala Ala	
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aag aag aaa gat gtc att tct gaa aaa ggc ggg aaa gtg caa aag caa	305
Lys Lys Lys Asp Val Ile Ser Glu Lys Gly Gly Lys Val Gln Lys Gln	
-50 -45 -40	
ttc aaa tat gta gac gca gct tca gct aca tta aac gaa aaa gct gta	353
Phe Lys Tyr Val Asp Ala Ala Ser Ala Thr Leu Asn Glu Lys Ala Val	
-35 -30 -25	
aaa gaa ttg aaa aaa gac ccg agc gtc gct tac gtt gaa gaa gat cac	401
Lys Glu Leu Lys Lys Asp Pro Ser Val Ala Tyr Val Glu Glu Asp His	
-20 -15 -10	
gta gca cat gcg tac gcg cag tcc gtg cct tac ggc gta tca caa att	449
Val Ala His Ala Tyr Ala Gln Ser Val Pro Tyr Gly Val Ser Gln Ile	
-5 -1 1 5 10	
aaa gcc cct gct ctg cac tct caa ggc tac act gga tca aat gtt aaa	497
Lys Ala Pro Ala Leu His Ser Gln Gly Tyr Thr Gly Ser Asn Val Lys	
15 20 25	
gta gcg gtt atc gac agc ggt atc gat tct tct cat cct gat tta aag	545
Val Ala Val Ile Asp Ser Gly Ile Asp Ser Ser His Pro Asp Leu Lys	
30 35 40	
gta gca ggc gga gcc agc atg gtt cct tct gaa aca nnn nnn ttc caa	593
Val Ala Gly Gly Ala Ser Met Val Pro Ser Glu Thr Xaa Xaa Phe Gln	
45 50 55	
gac nnn aac tct cac gga act cac gtt gcc ggc aca gtt gcg gct ctt	641
Asp Xaa Asn Ser His Gly Thr His Val Ala Gly Thr Val Ala Ala Leu	
60 65 70 75	
aat aac tca atc ggt gta tta ggc gtt gcg cca agc nnn nnn ctt tac	689
Asn Asn Ser Ile Gly Val Leu Gly Val Ala Pro Ser Xaa Xaa Leu Tyr	
80 85 90	
gct gta aaa gtt ctc ggt nnn nnn ggt tcc ggc caa tac agc tgg atc	737
Ala Val Lys Val Leu Gly Xaa Xaa Gly Ser Gly Gln Tyr Ser Trp Ile	
95 100 105	
att aac gga atc gag tgg gcg atc gca aac aat atg gac gtt att aac	785
Ile Asn Gly Ile Glu Trp Ala Ile Ala Asn Asn Met Asp Val Ile Asn	
110 115 120	
atg agc ctc ggc gga cct tct ggt tct gct gct tta aaa gcg gca gtt	833
Met Ser Leu Gly Gly Pro Ser Gly Ser Ala Ala Leu Lys Ala Ala Val	
125 130 135	
gat aaa gcc gtt gca tcc ggc gtc gta gtc gtt gcg gca gcc ggt aac	881
Asp Lys Ala Val Ala Ser Gly Val Val Val Ala Ala Ala Gly Asn	
140 145 150 155	
gaa ggc nnn nnn ggc agc tca agc aca gtg ggc tac cct ggt aaa tac	929
Glu Gly Xaa Xaa Gly Ser Ser Ser Thr Val Gly Tyr Pro Gly Lys Tyr	
160 165 170	

cct tct gtc att gca gta ggc gct gtt gac agc agc aac caa aga gca 977  
Pro Ser Val Ile Ala Val Gly Ala Val Asp Ser Ser Asn Gln Arg Ala  
175 180 185

tct ttc tca agc gta gga cct gag ctt gat gtc atg gca cct ggc gta 1025  
Ser Phe Ser Ser Val Gly Pro Glu Leu Asp Val Met Ala Pro Gly Val  
190 195 200

tct atc caa agc acg ctt cct gga aac aaa tac ggg gcg tac aac ggt 1073  
Ser Ile Gln Ser Thr Leu Pro Gly Asn Lys Tyr Gly Ala Tyr Asn Gly  
205 210 215

acg tca atg gca tct ccg cac gtt gcc gga gcg gct gct ttg att ctt 1121  
Thr Ser Met Ala Ser Pro His Val Ala Gly Ala Ala Ala Leu Ile Leu  
220 225 230 235

tct aag cac ccg aac tgg aca aac act caa gtc cgc agc agt tta nnn 1169  
Ser Lys His Pro Asn Trp Thr Asn Thr Gln Val Arg Ser Ser Leu Xaa  
240 245 250

aac acc act aca aaa ctt ggt gat tct ttc tac tat gga aaa ggg ctg 1217  
Asn Thr Thr Thr Lys Leu Gly Asp Ser Phe Tyr Tyr Gly Lys Gly Leu  
255 260 265

atc aac gta cag gcg gca gct cag taa aacataaaaa accggccttg 1264  
Ile Asn Val Gln Ala Ala Ala Gln  
270 275

gccccgcgcg ttttttttatt tttcttcctc cgcatgttca atccgctcca taatcgacgg 1324

atggctccct ctgaaaattt taacgagaaa cggcggttg acccggtca gtcccgtaac 1384

ggccaagtcc tgaaacgtct caatcgccgc ttcccggttt ccggtcagct caatgccgta 1444

acggtcggcg gcgttttctt gataccggga gacggcattc gtaatcgat c 1495

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<213> Bacillus amyloliquefaciens

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<223> Xaa = Asn or Pro

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<222> (164)...(164)  
<223> Xaa = Pro or Asn

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<222> (168)...(168)  
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 <222> (358)...(358)  
 <223> Xaa = Gln or Glu

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 Ile Phe Thr Met Ala Phe Gly Ser Thr Ser Ser Ala Gln Ala Ala Gly  
 20 25 30  
 Lys Ser Asn Gly Glu Lys Lys Tyr Ile Val Gly Phe Lys Gln Thr Met  
 35 40 45  
 Ser Thr Met Ser Ala Ala Lys Lys Lys Asp Val Ile Ser Glu Lys Gly  
 50 55 60  
 Gly Lys Val Gln Lys Gln Phe Lys Tyr Val Asp Ala Ala Ser Ala Thr  
 65 70 75 80  
 Leu Asn Glu Lys Ala Val Lys Glu Leu Lys Lys Asp Pro Ser Val Ala  
 85 90 95  
 Tyr Val Glu Glu Asp His Val Ala His Ala Tyr Ala Gln Ser Val Pro  
 100 105 110  
 Tyr Gly Val Ser Gln Ile Lys Ala Pro Ala Leu His Ser Gln Gly Tyr  
 115 120 125  
 Thr Gly Ser Asn Val Lys Val Ala Val Ile Asp Ser Gly Ile Asp Ser  
 130 135 140  
 Ser His Pro Asp Leu Lys Val Ala Gly Gly Ala Ser Met Val Pro Ser  
 145 150 155 160  
 Glu Thr Xaa Xaa Phe Gln Asp Xaa Asn Ser His Gly Thr His Val Ala  
 165 170 175  
 Gly Thr Val Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly Val Ala  
 180 185 190  
 Pro Ser Xaa Xaa Leu Tyr Ala Val Lys Val Leu Gly Xaa Xaa Gly Ser  
 195 200 205

Gly	Gln	Tyr	Ser	Trp	Ile	Ile	Asn	Gly	Ile	Glu	Trp	Ala	Ile	Ala	Asn
210						215				220					
Asn	Met	Asp	Val	Ile	Asn	Met	Ser	Leu	Gly	Gly	Pro	Ser	Gly	Ser	Ala
225					230				235						240
Ala	Leu	Lys	Ala	Ala	Val	Asp	Lys	Ala	Val	Ala	Ser	Gly	Val	Val	Val
				245					250					255	
Val	Ala	Ala	Ala	Gly	Asn	Glu	Gly	Xaa	Xaa	Gly	Ser	Ser	Ser	Thr	Val
				260				265					270		
Gly	Tyr	Pro	Gly	Lys	Tyr	Pro	Ser	Val	Ile	Ala	Val	Gly	Ala	Val	Asp
		275					280					285			
Ser	Ser	Asn	Gln	Arg	Ala	Ser	Phe	Ser	Ser	Val	Gly	Pro	Glu	Leu	Asp
	290					295					300				
Val	Met	Ala	Pro	Gly	Val	Ser	Ile	Gln	Ser	Thr	Leu	Pro	Gly	Asn	Lys
305					310					315					320
Tyr	Gly	Ala	Tyr	Asn	Gly	Thr	Ser	Met	Ala	Ser	Pro	His	Val	Ala	Gly
				325					330					335	
Ala	Ala	Ala	Leu	Ile	Leu	Ser	Lys	His	Pro	Asn	Trp	Thr	Asn	Thr	Gln
			340					345					350		
Val	Arg	Ser	Ser	Leu	Xaa	Asn	Thr	Thr	Thr	Lys	Leu	Gly	Asp	Ser	Phe
		355				360						365			
Tyr	Tyr	Gly	Lys	Gly	Leu	Ile	Asn	Val	Gln	Ala	Ala	Ala	Gln		
	370					375					380				

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 <213> Bacillus amyloliquefaciens

<400> 3

Ala	Gln	Ser	Val	Pro	Tyr	Gly	Val	Ser	Gln	Ile	Lys	Ala	Pro	Ala	Leu
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His	Ser	Gln	Gly	Tyr	Thr	Gly	Ser	Asn	Val	Lys	Val	Ala	Val	Ile	Asp
		20						25					30		
Ser	Gly	Ile	Asp	Ser	Ser	His	Pro	Asp	Leu	Lys	Val	Ala	Gly	Gly	Ala
		35					40					45			
Ser	Met	Val	Pro	Ser	Glu	Thr	Asn	Pro	Phe	Gln	Asp	Asn	Asn	Ser	His
	50					55					60				
Gly	Thr	His	Val	Ala	Gly	Thr	Val	Ala	Ala	Leu	Asn	Asn	Ser	Ile	Gly
65					70					75					80
Val	Leu	Gly	Val	Ala	Pro	Ser	Ala	Ser	Leu	Tyr	Ala	Val	Lys	Val	Leu
				85					90					95	
Gly	Ala	Asp	Gly	Ser	Gly	Gln	Tyr	Ser	Trp	Ile	Ile	Asn	Gly	Ile	Glu
			100					105					110		
Trp	Ala	Ile	Ala	Asn	Asn	Met	Asp	Val	Ile	Asn	Met	Ser	Leu	Gly	Gly
		115					120					125			
Pro	Ser	Gly	Ser	Ala	Ala	Leu	Lys	Ala	Ala	Val	Asp	Lys	Ala	Val	Ala
	130					135					140				
Ser	Gly	Val	Val	Val	Val	Ala	Ala	Ala	Gly	Asn	Glu	Gly	Thr	Ser	Gly
145					150					155					160

Ser Ser Ser Thr Val Gly Tyr Pro Gly Lys Tyr Pro Ser Val Ile Ala  
 165 170 175  
 Val Gly Ala Val Asp Ser Ser Asn Gln Arg Ala Ser Phe Ser Ser Val  
 180 185 190  
 Gly Pro Glu Leu Asp Val Met Ala Pro Gly Val Ser Ile Gln Ser Thr  
 195 200 205  
 Leu Pro Gly Asn Lys Tyr Gly Ala Tyr Asn Gly Thr Ser Met Ala Ser  
 210 215 220  
 Pro His Val Ala Gly Ala Ala Ala Leu Ile Leu Ser Lys His Pro Asn  
 225 230 235 240  
 Trp Thr Asn Thr Gln Val Arg Ser Ser Leu Glu Asn Thr Thr Thr Lys  
 245 250 255  
 Leu Gly Asp Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Gln Ala  
 260 265 270  
 Ala Ala Gln  
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<210> 4  
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 <212> PRT  
 <213> Bacillus subtilis

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 His Ser Gln Gly Tyr Thr Gly Ser Asn Val Lys Val Ala Val Ile Asp  
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 Ser Gly Ile Asp Ser Ser His Pro Asp Leu Asn Val Arg Gly Gly Ala  
 35 40 45  
 Ser Phe Val Pro Ser Glu Thr Asn Pro Tyr Gln Asp Gly Ser Ser His  
 50 55 60  
 Gly Thr His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly  
 65 70 75 80  
 Val Leu Gly Val Ser Pro Ser Ala Ser Leu Tyr Ala Val Lys Val Leu  
 85 90 95  
 Asp Ser Thr Gly Ser Gly Gln Tyr Ser Trp Ile Ile Asn Gly Ile Glu  
 100 105 110  
 Trp Ala Ile Ser Asn Asn Met Asp Val Ile Asn Met Ser Leu Gly Gly  
 115 120 125  
 Pro Thr Gly Ser Thr Ala Leu Lys Thr Val Val Asp Lys Ala Val Ser  
 130 135 140  
 Ser Gly Ile Val Val Ala Ala Ala Ala Gly Asn Glu Gly Ser Ser Gly  
 145 150 155 160

Ser Thr Ser Thr Val Gly Tyr Pro Ala Lys Tyr Pro Ser Thr Ile Ala  
 165 170 175  
 Val Gly Ala Val Asn Ser Ser Asn Gln Arg Ala Ser Phe Ser Ser Ala  
 180 185 190  
 Gly Ser Glu Leu Asp Val Met Ala Pro Gly Val Ser Ile Gln Ser Thr  
 195 200 205  
 Leu Pro Gly Gly Thr Tyr Gly Ala Tyr Asn Gly Thr Ser Met Ala Thr  
 210 215 220  
 Pro His Val Ala Gly Ala Ala Ala Leu Ile Leu Ser Lys His Pro Thr  
 225 230 235 240  
 Trp Thr Asn Ala Gln Val Arg Asp Arg Leu Glu Ser Thr Ala Thr Tyr  
 245 250 255  
 Leu Gly Asn Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Gln Ala  
 260 265 270  
 Ala Ala Gln  
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<210> 5  
 <211> 274  
 <212> PRT  
 <213> Bacillus licheniformis

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 Thr Gly Ile Gln Ala Ser His Pro Asp Leu Asn Val Val Gly Gly Ala  
 35 40 45  
 Ser Phe Val Ala Gly Glu Ala Tyr Asn Thr Asp Gly Asn Gly His Gly  
 50 55 60  
 Thr His Val Ala Gly Thr Val Ala Ala Leu Asp Asn Thr Thr Gly Val  
 65 70 75 80  
 Leu Gly Val Ala Pro Ser Val Ser Leu Tyr Ala Val Lys Val Leu Asn  
 85 90 95  
 Ser Ser Gly Ser Gly Ser Tyr Ser Gly Ile Val Ser Gly Ile Glu Trp  
 100 105 110  
 Ala Thr Thr Asn Gly Met Asp Val Ile Asn Met Ser Leu Gly Gly Ala  
 115 120 125  
 Ser Gly Ser Thr Ala Met Lys Gln Ala Val Asp Asn Ala Tyr Ala Arg  
 130 135 140  
 Gly Val Val Val Val Ala Ala Ala Gly Asn Ser Gly Asn Ser Gly Ser



145                      150                      155                      160  
 Thr Asn Thr Ile Gly Tyr Pro Ala Lys Tyr Asp Ser Val Ile Ala Val  
                                  165                      170                      175  
 Gly Ala Val Asp Ser Asn Ser Asn Arg Ala Ser Phe Ser Ser Val Gly  
                                  180                      185                      190  
 Ala Glu Leu Glu Val Met Ala Pro Gly Ala Gly Val Tyr Ser Thr Tyr  
                                  195                      200                      205  
 Pro Thr Asn Thr Tyr Ala Thr Leu Asn Gly Thr Ser Met Ala Ser Pro  
                                  210                      215                      220  
 His Val Ala Gly Ala Ala Ala Leu Ile Leu Ser Lys His Pro Asn Leu  
 225                                   230                      235                      240  
 Ser Ala Ser Gln Val Arg Asn Arg Leu Ser Ser Thr Ala Thr Tyr Leu  
                                  245                      250                      255  
 Gly Ser Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Glu Ala Ala  
                                  260                      265                      270  
 Ala Gln

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 Thr Gly Ile Ser Thr His Pro Asp Leu Asn Ile Arg Gly Gly Ala Ser  
                                  35                                 40                                 45  
 Phe Val Pro Gly Glu Pro Ser Thr Gln Asp Gly Asn Gly His Gly Thr  
                                  50                                 55                                 60  
 His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu  
 65                                 70                                 75                                 80  
 Gly Val Ala Pro Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala  
                                  85                                 90                                 95  
 Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly Leu Glu Trp Ala  
                                  100                                 105                                 110  
 Gly Asn Asn Gly Met His Val Ala Asn Leu Ser Leu Gly Ser Pro Ser  
                                  115                                 120                                 125  
 Pro Ser Ala Thr Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly  
                                  130                                 135                                 140

Val Leu Val Val Ala Ala Ser Gly Asn Ser Gly Ala Gly Ser Ile Ser  
145 150 155 160

Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val Gly Ala Thr Asp Gln  
165 170 175

Asn Asn Asn Arg Ala Ser Phe Ser Gln Tyr Gly Ala Gly Leu Asp Ile  
180 185 190

Val Ala Pro Gly Val Asn Val Gln Ser Thr Tyr Pro Gly Ser Thr Tyr  
195 200 205

Ala Ser Leu Asn Gly Thr Ser Met Ala Thr Pro His Val Ala Gly Ala  
210 215 220

Ala Ala Leu Val Lys Gln Lys Asn Pro Ser Trp Ser Asn Val Gln Ile  
225 230 235 240

Arg Asn His Leu Lys Asn Thr Ala Thr Ser Leu Gly Ser Thr Asn Leu  
245 250 255

Tyr Gly Ser Gly Leu Val Asn Ala Glu Ala Ala Thr Arg  
260 265

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<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 7  
Ile Lys Asp Phe His Val Tyr Phe Arg Glu Ser Arg Asp Ala Gly  
1 5 10 15

<210> 8  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 8  
Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly Val Leu Val  
1 5 10 15

<210> 9  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 9

Ala Gln Ser Val Pro Trp Gly Ile Ser Arg Val Gln Ala Pro Ala  
1 5 10 15

<210> 10  
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<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 10  
Val Pro Trp Gly Ile Ser Arg Val Gln Ala Pro Ala Ala His Asn  
1 5 10 15

<210> 11  
<211> 15  
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<220>  
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Gly Ile Ser Arg Val Gln Ala Pro Ala Ala His Asn Arg Gly Leu  
1 5 10 15

<210> 12  
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<212> PRT  
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<400> 12  
Arg Val Gln Ala Pro Ala Ala His Asn Arg Gly Leu Thr Gly Ser  
1 5 10 15

<210> 13  
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<212> PRT  
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<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 13  
Ala Pro Ala Ala His Asn Arg Gly Leu Thr Gly Ser Gly Val Lys  
1 5 10 15

<210> 14  
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<212> PRT  
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<220>  
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Ala His Asn Arg Gly Leu Thr Gly Ser Gly Val Lys Val Ala Val  
1 5 10 15

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<220>  
<223> Description of Artificial Sequence: Synthetic

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1 5 10 15

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<211> 15  
<212> PRT  
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<220>  
<223> Description of Artificial Sequence: Synthetic

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<210> 17  
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<220>  
<223> Description of Artificial Sequence: Synthetic

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1 5 10 15

<210> 18  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 18  
Val Ala Val Leu Asp Thr Gly Ile Ser Thr His Pro Asp Leu Asn  
1 5 10 15

<210> 19  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
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 1 5 10 15

<210> 20  
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 <212> PRT  
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 Gly Ile Ser Thr His Pro Asp Leu Asn Ile Arg Gly Gly Ala Ser  
 1 5 10 15

<210> 21  
 <211> 15  
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 <223> Description of Artificial Sequence: Synthetic  
  
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 Thr His Pro Asp Leu Asn Ile Arg Gly Gly Ala Ser Phe Val Pro  
 1 5 10 15

<210> 22  
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 <220>  
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 <400> 22  
 Asp Leu Asn Ile Arg Gly Gly Ala Ser Phe Val Pro Gly Glu Pro  
 1 5 10 15

<210> 23  
 <211> 15  
 <212> PRT  
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 <223> Description of Artificial Sequence: Synthetic

<400> 23  
Ile Arg Gly Gly Ala Ser Phe Val Pro Gly Glu Pro Ser Thr Gln  
1 5 10 15

<210> 24  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

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<210> 25  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

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1 5 10 15

<210> 26  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 26  
Gly Glu Pro Ser Thr Gln Asp Gly Asn Gly His Gly Thr His Val  
1 5 10 15

<210> 27  
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<212> PRT  
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<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 27  
Ser Thr Gln Asp Gly Asn Gly His Gly Thr His Val Ala Gly Thr  
1 5 10 15

<210> 28  
<211> 15

<212> PRT  
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 <223> Description of Artificial Sequence: Synthetic  
 <400> 28  
 Asp Gly Asn Gly His Gly Thr His Val Ala Gly Thr Ile Ala Ala  
 1 5 10 15

<210> 29  
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 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 29  
 Gly His Gly Thr His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn  
 1 5 10 15

<210> 30  
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 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 30  
 Thr His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly  
 1 5 10 15

<210> 31  
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 <212> PRT  
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<220>  
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 <400> 31  
 Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly  
 1 5 10 15

<210> 32  
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 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 32  
 Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly Val Ala Pro

1 5 10 15

<210> 33  
 <211> 15  
 <212> PRT  
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<220>  
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<400> 33  
 Leu Asn Asn Ser Ile Gly Val Leu Gly Val Ala Pro Ser Ala Glu  
 1 5 10 15

<210> 34  
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 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 34  
 Ser Ile Gly Val Leu Gly Val Ala Pro Ser Ala Glu Leu Tyr Ala  
 1 5 10 15

<210> 35  
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 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 35  
 Val Leu Gly Val Ala Pro Ser Ala Glu Leu Tyr Ala Val Lys Val  
 1 5 10 15

<210> 36  
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 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 36  
 Val Ala Pro Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala  
 1 5 10 15

<210> 37  
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 <212> PRT  
 <213> Artificial Sequence



<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
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 Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala Ser Gly Ser  
     1                    5                    10                    15  
  
 <210> 38  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 38  
 Leu Tyr Ala Val Lys Val Leu Gly Ala Ser Gly Ser Gly Ser Val  
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 <211> 15  
 <212> PRT  
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 <400> 39  
 Val Lys Val Leu Gly Ala Ser Gly Ser Gly Ser Val Ser Ser Ile  
     1                    5                    10                    15  
  
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 <212> PRT  
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 Leu Gly Ala Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly  
     1                    5                    10                    15  
  
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 Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly Leu Glu Trp  
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<210> 42  
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 Gly Ser Val Ser Ser Ile Ala Gln Gly Leu Glu Trp Ala Gly Asn  
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 <212> PRT  
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 <400> 43  
 Ser Ser Ile Ala Gln Gly Leu Glu Trp Ala Gly Asn Asn Gly Met  
   1                  5                  10                  15  
  
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 <212> PRT  
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 <400> 44  
 Ala Gln Gly Leu Glu Trp Ala Gly Asn Asn Gly Met His Val Ala  
   1                  5                  10                  15  
  
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 <400> 45  
 Leu Glu Trp Ala Gly Asn Asn Gly Met His Val Ala Asn Leu Ser  
   1                  5                  10                  15  
  
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 <223> Description of Artificial Sequence: Synthetic

<400> 46  
Ala Gly Asn Asn Gly Met His Val Ala Asn Leu Ser Leu Gly Ser  
1 5 10 15

<210> 47  
<211> 15  
<212> PRT  
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<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 47  
Asn Gly Met His Val Ala Asn Leu Ser Leu Gly Ser Pro Ser Pro  
1 5 10 15

<210> 48  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 48  
His Val Ala Asn Leu Ser Leu Gly Ser Pro Ser Pro Ser Ala Thr  
1 5 10 15

<210> 49  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 49  
Asn Leu Ser Leu Gly Ser Pro Ser Pro Ser Ala Thr Leu Glu Gln  
1 5 10 15

<210> 50  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 50  
Leu Gly Ser Pro Ser Pro Ser Ala Thr Leu Glu Gln Ala Val Asn  
1 5 10 15

<210> 51  
<211> 15  
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 51

Pro Ser Pro Ser Ala Thr Leu Glu Gln Ala Val Asn Ser Ala Thr  
1 5 10 15

<210> 52

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 52

Ser Ala Thr Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly  
1 5 10 15

<210> 53

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 53

Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly Val Leu Val  
1 5 10 15

<210> 54

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 54

Ala Val Asn Ser Ala Thr Ser Arg Gly Val Leu Val Val Ala Ala  
1 5 10 15

<210> 55

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 55

Ser Ala Thr Ser Arg Gly Val Leu Val Val Ala Ala Ser Gly Asn  
1 5 10 15

<210> 56  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 56  
Ser Arg Gly Val Leu Val Val Ala Ala Ser Gly Asn Ser Gly Ala  
1 5 10 15

<210> 57  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 57  
Val Leu Val Val Ala Ala Ser Gly Asn Ser Gly Ala Gly Ser Ile  
1 5 10 15

<210> 58  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 58  
Val Ala Ala Ser Gly Asn Ser Gly Ala Gly Ser Ile Ser Tyr Pro  
1 5 10 15

<210> 59  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 59  
Ser Gly Asn Ser Gly Ala Gly Ser Ile Ser Tyr Pro Ala Arg Tyr  
1 5 10 15

<210> 60  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 60

Ser Gly Ala Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala  
1 5 10 15

<210> 61

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 61

Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val  
1 5 10 15

<210> 62

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 62

Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val Gly Ala Thr  
1 5 10 15

<210> 63

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 63

Ala Arg Tyr Ala Asn Ala Met Ala Val Gly Ala Thr Asp Gln Asn  
1 5 10 15

<210> 64

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 64

Ala Asn Ala Met Ala Val Gly Ala Thr Asp Gln Asn Asn Asn Arg  
1 5 10 15

<210> 65

<211> 15  
 <212> PRT  
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 <400> 65  
 Met Ala Val Gly Ala Thr Asp Gln Asn Asn Asn Arg Ala Ser Phe  
       1                  5                  10                  15  
  
 <210> 66  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 66  
 Gly Ala Thr Asp Gln Asn Asn Asn Arg Ala Ser Phe Ser Gln Tyr  
       1                  5                  10                  15  
  
 <210> 67  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 67  
 Asp Gln Asn Asn Asn Arg Ala Ser Phe Ser Gln Tyr Gly Ala Gly  
       1                  5                  10                  15  
  
 <210> 68  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 68  
 Asn Asn Arg Ala Ser Phe Ser Gln Tyr Gly Ala Gly Leu Asp Ile  
       1                  5                  10                  15  
  
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 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 69

Ala Ser Phe Ser Gln Tyr Gly Ala Gly Leu Asp Ile Val Ala Pro  
1 5 10 15

<210> 70

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 70

Ser Gln Tyr Gly Ala Gly Leu Asp Ile Val Ala Pro Gly Val Asn  
1 5 10 15

<210> 71

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 71

Gly Ala Gly Leu Asp Ile Val Ala Pro Gly Val Asn Val Gln Ser  
1 5 10 15

<210> 72

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 72

Leu Asp Ile Val Ala Pro Gly Val Asn Val Gln Ser Thr Tyr Pro  
1 5 10 15

<210> 73

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 73

Val Ala Pro Gly Val Asn Val Gln Ser Thr Tyr Pro Gly Ser Thr  
1 5 10 15

<210> 74

<211> 15

<212> PRT

<213> Artificial Sequence



<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 74  
 Gly Val Asn Val Gln Ser Thr Tyr Pro Gly Ser Thr Tyr Ala Ser  
     1                    5                    10                    15  
  
 <210> 75  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 75  
 Val Gln Ser Thr Tyr Pro Gly Ser Thr Tyr Ala Ser Leu Asn Gly  
     1                    5                    10                    15  
  
 <210> 76  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 76  
 Thr Tyr Pro Gly Ser Thr Tyr Ala Ser Leu Asn Gly Thr Ser Met  
     1                    5                    10                    15  
  
 <210> 77  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 77  
 Gly Ser Thr Tyr Ala Ser Leu Asn Gly Thr Ser Met Ala Thr Pro  
     1                    5                    10                    15  
  
 <210> 78  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 78  
 Tyr Ala Ser Leu Asn Gly Thr Ser Met Ala Thr Pro His Val Ala  
     1                    5                    10                    15

<210> 79  
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 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 79  
 Leu Asn Gly Thr Ser Met Ala Thr Pro His Val Ala Gly Ala Ala  
 1 5 10 15

<210> 80  
 <211> 15  
 <212> PRT  
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 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 80  
 Thr Ser Met Ala Thr Pro His Val Ala Gly Ala Ala Ala Leu Val  
 1 5 10 15

<210> 81  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 81  
 Ala Thr Pro His Val Ala Gly Ala Ala Ala Leu Val Lys Gln Lys  
 1 5 10 15

<210> 82  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
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 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 82  
 Gly Val Ala Gly Ala Ala Ala Leu Val Lys Gln Lys Asn Pro Ser  
 1 5 10 15

<210> 83  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 83  
Gly Ala Ala Ala Leu Val Lys Gln Lys Asn Pro Ser Trp Ser Asn  
1 5 10 15

<210> 84  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 84  
Ala Leu Val Lys Gln Lys Asn Pro Ser Trp Ser Asn Val Gln Ile  
1 5 10 15

<210> 85  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 85  
Lys Gln Lys Asn Pro Ser Trp Ser Val Asn Gln Ile Arg Asn His  
1 5 10 15

<210> 86  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 86  
Asn Pro Ser Trp Ser Asn Val Gln Ile Arg Asn His Leu Lys Asn  
1 5 10 15

<210> 87  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 87  
Trp Ser Asn Val Gln Ile Arg Asn His Leu Lys Asn Thr Ala Thr  
1 5 10 15

<210> 88  
<211> 15

<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 88

Val	Gln	Ile	Arg	Asn	His	Leu	Lys	Asn	Thr	Ala	Thr	Ser	Leu	Gly
1				5				10					15	

<210> 89

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 89

Arg	Asn	His	Leu	Lys	Asn	Thr	Ala	Thr	Ser	Leu	Gly	Ser	Thr	Asn
1				5				10					15	

<210> 90

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 90

Leu	Lys	Asn	Thr	Ala	Thr	Ser	Leu	Gly	Ser	Thr	Asn	Leu	Tyr	Gly
1				5				10					15	

<210> 91

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 91

Thr	Ala	Thr	Ser	Leu	Gly	Ser	Thr	Asn	Leu	Tyr	Gly	Ser	Gly	Leu
1				5				10					15	

<210> 92

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 92

Ser Leu Gly Ser Thr Asn Leu Tyr Gly Ser Gly Leu Val Asn Ala

1	5	10	15
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<210> 93  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 93  
 Ser Thr Asn Leu Tyr Gly Ser Gly Leu Val Asn Ala Glu Ala Ala  
 1                      5                      10                      15

<210> 94  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 94  
 Asn Leu Tyr Gly Ser Gly Leu Val Asn Ala Glu Ala Ala Thr Arg  
 1                      5                      10                      15

<210> 95  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 95  
 Asp Ala Glu Leu His Ile Phe Arg Val Phe Thr Asn Asn Gln Val  
 1                      5                      10                      15

<210> 96  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 96  
 Pro Leu Arg Arg Ala Ser Leu Ser Leu Gly Ser Gly Phe Trp His  
 1                      5                      10                      15

<210> 97  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 97  
 Arg Ala Ser Leu Ser Leu Gly Ser Gly Phe Trp His Ala Thr Gly  
 1 5 10 15

<210> 98  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 98  
 Leu Ser Leu Gly Ser Gly Phe Trp His Ala Thr Gly Arg His Ser  
 1 5 10 15

<210> 99  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 99  
 Gly Ser Gly Phe Trp His Ala Thr Gly Arg His Ser Ser Arg Arg  
 1 5 10 15

<210> 100  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 100  
 Phe Trp His Ala Thr Gly Arg His Ser Ser Arg Arg Leu Leu Arg  
 1 5 10 15

<210> 101  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 101  
 Ala Thr Gly Arg His Ser Ser Arg Arg Leu Leu Arg Ala Ile Pro  
 1 5 10 15

<210> 102  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 102  
 Arg His Ser Ser Arg Arg Leu Leu Arg Ala Ile Pro Arg Gln Val  
 1 5 10 15

<210> 103  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 103  
 Ser Arg Arg Leu Leu Arg Ala Ile Pro Arg Gln Val Ala Gln Thr  
 1 5 10 15

<210> 104  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 104  
 Leu Leu Arg Ala Ile Pro Arg Gln Val Ala Gln Thr Leu Gln Ala  
 1 5 10 15

<210> 105  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 105  
 Ala Ile Pro Arg Gln Val Ala Gln Thr Leu Gln Ala Asp Val Leu  
 1 5 10 15

<210> 106  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 106  
Arg Gln Val Ala Gln Thr Leu Gln Ala Asp Val Leu Trp Gln Met  
1 5 10 15

<210> 107  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 107  
Ala Gln Thr Leu Gln Ala Asp Val Leu Trp Gln Met Gly Tyr Thr  
1 5 10 15

<210> 108  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 108  
Leu Gln Ala Asp Val Leu Trp Gln Met Gly Tyr Thr Gly Ala Asn  
1 5 10 15

<210> 109  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 109  
Asp Val Leu Trp Gln Met Gly Tyr Thr Gly Ala Asn Val Arg Val  
1 5 10 15

<210> 110  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 110  
Trp Gln Met Gly Tyr Thr Gly Ala Asn Val Arg Val Ala Val Phe  
1 5 10 15

<210> 111  
<211> 15  
<212> PRT



<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 111

Gly Tyr Thr Gly Ala Asn Val Arg Val Ala Val Phe Asp Thr Gly  
1 5 10 15

<210> 112

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 112

Gly Ala Asn Val Arg Val Ala Val Phe Asp Thr Gly Leu Ser Glu  
1 5 10 15

<210> 113

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 113

Val Arg Val Ala Val Phe Asp Thr Gly Leu Ser Glu Lys His Pro  
1 5 10 15

<210> 114

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 114

Ala Val Phe Asp Thr Gly Leu Ser Glu Lys His Pro His Phe Lys  
1 5 10 15

<210> 115

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 115

Asp Thr Gly Leu Ser Glu Lys His Pro His Phe Lys Asn Val Lys  
1 5 10 15

<210> 116  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 116  
Leu Ser Glu Lys His Pro His Phe Lys Asn Val Lys Glu Arg Thr  
1 5 10 15

<210> 117  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 117  
Lys His Pro His Phe Lys Asn Val Lys Glu Arg Thr Asn Trp Thr  
1 5 10 15

<210> 118  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 118  
His Phe Lys Asn Val Lys Glu Arg Thr Asn Trp Thr Asn Glu Arg  
1 5 10 15

<210> 119  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 119  
Asn Val Lys Glu Arg Thr Asn Trp Thr Asn Glu Arg Thr Leu Asp  
1 5 10 15

<210> 120  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 120

Glu	Arg	Thr	Asn	Trp	Thr	Asn	Glu	Arg	Thr	Leu	Asp	Asp	Gly	Leu
1				5					10					15

<210> 121

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 121

Asn	Trp	Thr	Asn	Glu	Arg	Thr	Leu	Asp	Asp	Gly	Leu	Gly	His	Gly
1				5					10					15

<210> 122

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 122

Asn	Glu	Arg	Thr	Leu	Asp	Asp	Gly	Leu	Gly	His	Gly	Thr	Phe	Val
1				5					10					15

<210> 123

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 123

Thr	Leu	Asp	Asp	Gly	Leu	Gly	His	Gly	Thr	Phe	Val	Ala	Gly	Val
1				5					10					15

<210> 124

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 124

Asp	Gly	Leu	Gly	His	Gly	Thr	Phe	Val	Ala	Gly	Val	Ile	Ala	Ser
1				5					10					15

<210> 125

<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 125

Gly His Gly Thr Phe Val Ala Gly Val Ile Ala Ser Met Arg Glu  
1 5 10 15

<210> 126

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 126

Thr Phe Val Ala Gly Val Ile Ala Ser Met Arg Glu Cys Gln Gly  
1 5 10 15

<210> 127

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 127

Ala Gly Val Ile Ala Ser Met Arg Glu Cys Gln Gly Phe Ala Pro  
1 5 10 15

<210> 128

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 128

Ile Ala Ser Met Arg Glu Cys Gln Gly Phe Ala Pro Asp Ala Glu  
1 5 10 15

<210> 129

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 129

Met	Arg	Glu	Cys	Gln	Gly	Phe	Ala	Pro	Asp	Ala	Glu	Leu	His	Ile
1				5					10					15

<210> 130  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

Cys	Gln	Gly	Phe	Ala	Pro	Asp	Ala	Glu	Leu	His	Ile	Phe	Arg	Val
1				5					10					15

<210> 131  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

Phe	Ala	Pro	Asp	Ala	Glu	Leu	His	Ile	Phe	Arg	Val	Phe	Thr	Asn
1				5					10					15

<210> 132  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

Asp	Ala	Glu	Leu	His	Ile	Phe	Arg	Val	Phe	Thr	Asn	Asn	Gln	Val
1				5					10					15

<210> 133  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

Leu	His	Ile	Phe	Arg	Val	Phe	Thr	Asn	Asn	Gln	Val	Ser	Tyr	Thr
1				5					10					15

<210> 134  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 134  
 Phe Arg Val Phe Thr Asn Asn Gln Val Ser Tyr Thr Ser Trp Phe  
 1 5 10 15

<210> 135  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 135  
 Phe Thr Asn Asn Gln Val Ser Tyr Thr Ser Trp Phe Leu Asp Ala  
 1 5 10 15

<210> 136  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 136  
 Asn Gln Val Ser Tyr Thr Ser Trp Phe Leu Asp Ala Phe Asn Tyr  
 1 5 10 15

<210> 137  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 137  
 Ser Tyr Thr Ser Trp Phe Leu Asp Ala Phe Asn Tyr Ala Ile Leu  
 1 5 10 15

<210> 138  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 <400> 138  
 Ser Trp Phe Leu Asp Ala Phe Asn Tyr Ala Ile Leu Lys Lys Ile  
 1 5 10 15

<210> 139  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 139  
 Leu Asp Ala Phe Asn Tyr Ala Ile Leu Lys Lys Ile Asp Val Leu  
 1 5 10 15

<210> 140  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 140  
 Phe Asn Tyr Ala Ile Leu Lys Lys Ile Asp Val Leu Asn Leu Ser  
 1 5 10 15

<210> 141  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 141  
 Ala Ile Leu Lys Lys Ile Asp Val Leu Asn Leu Ser Ile Gly Gly  
 1 5 10 15

<210> 142  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 142  
 Lys Lys Ile Asp Val Leu Asn Leu Ser Ile Gly Gly Pro Asp Phe  
 1 5 10 15

<210> 143  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 143  
Asp Val Leu Asn Leu Ser Ile Gly Gly Pro Asp Phe Met Asp His  
1 5 10 15

<210> 144  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 144  
Asn Leu Ser Ile Gly Gly Pro Asp Phe Met Asp His Pro Phe Val  
1 5 10 15

<210> 145  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 145  
Ile Gly Gly Pro Asp Phe Met Asp His Pro Phe Val Asp Lys Val  
1 5 10 15

<210> 146  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 146  
Pro Asp Phe Met Asp His Pro Phe Val Asp Lys Val Trp Glu Leu  
1 5 10 15

<210> 147  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 147  
Met Asp His Pro Phe Val Asp Lys Val Trp Glu Leu Thr Ala Asn  
1 5 10 15

<210> 148  
<211> 15



<212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 148  
 Pro Phe Val Asp Lys Val Trp Glu Leu Thr Ala Asn Asn Val Ile  
   1                  5                  10                  15  
  
 <210> 149  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 149  
 Asp Lys Val Trp Glu Leu Thr Ala Asn Asn Val Ile Met Val Ser  
   1                  5                  10                  15  
  
 <210> 150  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 150  
 Trp Glu Leu Thr Ala Asn Asn Val Ile Met Val Ser Ala Ile Gly  
   1                  5                  10                  15  
  
 <210> 151  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 151  
 Thr Ala Asn Asn Val Ile Met Val Ser Ala Ile Gly Asn Asp Gly  
   1                  5                  10                  15  
  
 <210> 152  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 152  
 Asn Val Ile Met Val Ser Ala Ile Gly Asn Asp Gly Pro Leu Tyr

1	5	10	15
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<210> 153  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 153  
 Met Val Ser Ala Ile Gly Asn Asp Gly Pro Leu Tyr Gly Thr Ile  
 1 5 10 15

<210> 154  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 154  
 Ala Ile Gly Asn Asp Gly Pro Leu Tyr Gly Thr Leu Asn Asn Pro  
 1 5 10 15

<210> 155  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 155  
 Asn Asp Gly Pro Leu Tyr Gly Thr Leu Asn Asn Pro Ala Asp Gln  
 1 5 10 15

<210> 156  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 156  
 Pro Leu Tyr Gly Thr Leu Asn Asn Pro Ala Asp Gln Met Asp Val  
 1 5 10 15

<210> 157  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 157  
 Gly Thr Leu Asn Asn Pro Ala Asp Gln Met Asp Val Ile Gly Val  
   1                  5                  10                  15

<210> 158  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 158  
 Asn Asn Pro Ala Asp Gln Met Asp Val Ile Gly Val Gly Gly Ile  
   1                  5                  10                  15

<210> 159  
 <211> 15  
 <212> PRT  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 159  
 Ala Asp Gln Met Asp Val Ile Gly Val Gly Gly Ile Asp Phe Glu  
   1                  5                  10                  15

<210> 160  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 160  
 Met Asp Val Ile Gly Val Gly Gly Ile Asp Phe Glu Asp Asn Ile  
   1                  5                  10                  15

<210> 161  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 161  
 Ile Gly Val Gly Gly Ile Asp Phe Glu Asp Asn Ile Ala Arg Phe  
   1                  5                  10                  15

<210> 162  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 162  
 Gly Gly Ile Asp Phe Glu Asp Asn Ile Ala Arg Phe Ser Ser Arg  
       1                  5                  10                  15

<210> 163  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 163  
 Asp Phe Glu Asp Asn Ile Ala Arg Phe Ser Ser Arg Gly Met Thr  
       1                  5                  10                  15

<210> 164  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 164  
 Asp Asn Ile Ala Arg Phe Ser Ser Arg Gly Met Thr Thr Trp Glu  
       1                  5                  10                  15

<210> 165  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 165  
 Ala Arg Phe Ser Ser Arg Gly Met Thr Thr Trp Glu Leu Pro Gly  
       1                  5                  10                  15

<210> 166  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 166  
Ser Ser Arg Gly Met Thr Thr Trp Glu Leu Pro Gly Gly Tyr Gly  
1 5 10 15

<210> 167  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 167  
Gly Met Thr Thr Trp Glu Leu Pro Gly Gly Tyr Gly Arg Met Lys  
1 5 10 15

<210> 168  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 168  
Thr Trp Glu Leu Pro Gly Gly Tyr Gly Arg Met Lys Pro Asp Ile  
1 5 10 15

<210> 169  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 169  
Leu Pro Gly Gly Tyr Gly Arg Met Lys Pro Asp Ile Val Thr Tyr  
1 5 10 15

<210> 170  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 170  
Gly Tyr Gly Arg Met Lys Pro Asp Ile Val Thr Tyr Gly Ala Gly  
1 5 10 15

<210> 171  
<211> 15  
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 171

Arg Met Lys Pro Asp Ile Val Thr Tyr Gly Ala Gly Val Arg Gly  
1 5 10 15

<210> 172

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 172

Pro Asp Ile Val Thr Tyr Gly Ala Gly Val Arg Gly Ser Gly Val  
1 5 10 15

<210> 173

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 173

Val Thr Tyr Gly Ala Gly Val Arg Gly Ser Gly Val Lys Gly Gly  
1 5 10 15

<210> 174

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 174

Gly Ala Gly Val Arg Gly Ser Gly Val Lys Gly Gly Cys Arg Ala  
1 5 10 15

<210> 175

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 175

Val Arg Gly Ser Gly Val Lys Gly Gly Cys Arg Ala Leu Ser Gly  
1 5 10 15

<210> 176  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 176  
 Ser Gly Val Lys Gly Gly Cys Arg Ala Leu Ser Gly Thr Ser Val  
 1 5 10 15

<210> 177  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 177  
 Lys Gly Gly Cys Arg Ala Leu Ser Gly Thr Ser Val Ala Ser Pro  
 1 5 10 15

<210> 178  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 178  
 Cys Arg Ala Leu Ser Gly Thr Ser Val Ala Ser Pro Val Val Ala  
 1 5 10 15

<210> 179  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 179  
 Leu Ser Gly Thr Ser Val Ala Ser Pro Val Val Ala Gly Ala Val  
 1 5 10 15

<210> 180  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>

<223> Description of Artificial Sequence: Synthetic

<400> 180

Thr Ser Val Ala Ser Pro Val Val Ala Gly Ala Val Thr Leu Leu  
1 5 10 15

<210> 181

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 181

Ala Ser Pro Val Val Ala Gly Ala Val Thr Leu Leu Val Ser Thr  
1 5 10 15

<210> 182

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 182

Val Val Ala Gly Ala Val Thr Leu Leu Val Ser Thr Val Gln Lys  
1 5 10 15

<210> 183

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 183

Gly Ala Val Thr Leu Leu Val Ser Thr Val Gln Lys Arg Glu Leu  
1 5 10 15

<210> 184

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 184

Thr Leu Leu Val Ser Thr Val Gln Lys Arg Glu Leu Val Asn Pro  
1 5 10 15

<210> 185



<211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 185  
 Val Ser Thr Val Gln Lys Arg Glu Leu Val Asn Pro Ala Ser Met  
   1                  5                  10                  15  
  
 <210> 186  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 186  
 Val Gln Lys Arg Glu Leu Val Asn Pro Ala Ser Met Lys Gln Ala  
   1                  5                  10                  15  
  
 <210> 187  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 187  
 Arg Glu Leu Val Asn Pro Ala Ser Met Lys Gln Ala Leu Ile Ala  
   1                  5                  10                  15  
  
 <210> 188  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 188  
 Val Asn Pro Ala Ser Met Lys Gln Ala Leu Ile Ala Ser Ala Arg  
   1                  5                  10                  15  
  
 <210> 189  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 189

Ala Ser Met Lys Gln Ala Leu Ile Ala Ser Ala Arg Arg Leu Pro  
1 5 10 15

<210> 190  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 190  
Lys Gln Ala Leu Ile Ala Ser Ala Arg Arg Leu Pro Gly Val Asn  
1 5 10 15

<210> 191  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 191  
Leu Ile Ala Ser Ala Arg Arg Leu Pro Gly Val Asn Met Phe Glu  
1 5 10 15

<210> 192  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 192  
Ser Ala Arg Arg Leu Pro Gly Val Asn Met Phe Glu Gln Gly His  
1 5 10 15

<210> 193  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 193  
Arg Leu Pro Gly Val Asn Met Phe Glu Gln Gly His Gly Lys Leu  
1 5 10 15

<210> 194  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 194  
 Gly Val Asn Met Phe Glu Gln Gly His Gly Lys Leu Asp Leu Leu  
     1                    5                    10                    15  
  
 <210> 195  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 195  
 Met Phe Glu Gln Gly His Gly Lys Leu Asp Leu Leu Arg Ala Tyr  
     1                    5                    10                    15  
  
 <210> 196  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 196  
 Gln Gly His Gly Lys Leu Asp Leu Leu Arg Ala Tyr Gln Ile Leu  
     1                    5                    10                    15  
  
 <210> 197  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 197  
 Gly Lys Leu Asp Leu Leu Arg Ala Tyr Gln Ile Leu Asn Ser Tyr  
     1                    5                    10                    15  
  
 <210> 198  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
  
 <400> 198  
 Asp Leu Leu Arg Ala Tyr Gln Ile Leu Asn Ser Tyr Lys Pro Gln  
     1                    5                    10                    15

<210> 199  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 199  
Arg Ala Tyr Gln Ile Leu Asn Ser Tyr Lys Pro Gln Ala Ser Leu  
1 5 10 15

<210> 200  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 200  
Gln Ile Leu Asn Ser Tyr Lys Pro Gln Ala Ser Leu Ser Pro Ser  
1 5 10 15

<210> 201  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 201  
Asn Ser Tyr Lys Pro Gln Ala Ser Leu Ser Pro Ser Tyr Ile Asp  
1 5 10 15

<210> 202  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 202  
Lys Pro Gln Ala Ser Leu Ser Pro Ser Tyr Ile Asp Leu Thr Glu  
1 5 10 15

<210> 203  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 203  
Ala Ser Leu Ser Pro Ser Tyr Ile Asp Leu Thr Glu Cys Pro Tyr  
1 5 10 15

<210> 204  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 204  
Ser Pro Ser Tyr Ile Asp Leu Thr Glu Cys Pro Tyr Met Trp Pro  
1 5 10 15

<210> 205  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 205  
Tyr Ile Asp Leu Thr Glu Cys Pro Tyr Met Trp Pro Tyr Cys Ser  
1 5 10 15

<210> 206  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 206  
Leu Thr Glu Cys Pro Tyr Met Trp Pro Tyr Cys Ser Gln Pro Ile  
1 5 10 15

<210> 207  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 207  
Cys Pro Tyr Met Trp Pro Tyr Cys Ser Gln Pro Ile Tyr Tyr Gly  
1 5 10 15

<210> 208  
<211> 1052

<212> PRT  
<213> Homo sapiens

<400> 208

Met	Lys	Leu	Val	Asn	Ile	Trp	Leu	Leu	Leu	Leu	Val	Val	Leu	Leu	Cys
1				5				10						15	
Gly	Lys	Lys	His	Leu	Gly	Asp	Arg	Leu	Glu	Lys	Lys	Ser	Phe	Glu	Lys
			20					25					30		
Ala	Pro	Cys	Pro	Gly	Cys	Ser	His	Leu	Thr	Leu	Lys	Val	Glu	Phe	Ser
		35					40					45			
Ser	Thr	Val	Val	Glu	Tyr	Glu	Tyr	Ile	Val	Ala	Phe	Asn	Gly	Tyr	Phe
	50					55					60				
Thr	Ala	Lys	Ala	Arg	Asn	Ser	Phe	Ile	Ser	Ser	Ala	Leu	Lys	Ser	Ser
65					70					75					80
Glu	Val	Asp	Asn	Trp	Arg	Ile	Ile	Pro	Arg	Asn	Asn	Pro	Ser	Ser	Asp
			85						90					95	
Tyr	Pro	Ser	Asp	Phe	Glu	Val	Ile	Gln	Ile	Lys	Glu	Lys	Gln	Lys	Ala
			100					105					110		
Gly	Leu	Leu	Thr	Leu	Glu	Asp	His	Pro	Asn	Ile	Lys	Arg	Val	Thr	Pro
	115						120					125			
Gln	Arg	Lys	Val	Phe	Arg	Ser	Leu	Lys	Tyr	Ala	Glu	Ser	Asp	Pro	Thr
	130					135					140				
Val	Pro	Cys	Asn	Glu	Thr	Arg	Trp	Ser	Gln	Lys	Trp	Gln	Ser	Ser	Arg
145					150					155					160
Pro	Leu	Arg	Arg	Ala	Ser	Leu	Ser	Leu	Gly	Ser	Gly	Phe	Trp	His	Ala
				165					170					175	
Thr	Gly	Arg	His	Ser	Ser	Arg	Arg	Leu	Leu	Arg	Ala	Ile	Pro	Arg	Gln
			180					185					190		
Val	Ala	Gln	Thr	Leu	Gln	Ala	Asp	Val	Leu	Trp	Gln	Met	Gly	Tyr	Thr
		195					200					205			
Gly	Ala	Asn	Val	Arg	Val	Ala	Val	Phe	Asp	Thr	Gly	Leu	Ser	Glu	Lys
	210					215					220				
His	Pro	His	Phe	Lys	Asn	Val	Lys	Glu	Arg	Thr	Asn	Trp	Thr	Asn	Glu
225					230					235					240
Arg	Thr	Leu	Asp	Asp	Gly	Leu	Gly	His	Gly	Thr	Phe	Val	Ala	Gly	Val
			245						250					255	
Ile	Ala	Ser	Met	Arg	Glu	Cys	Gln	Gly	Phe	Ala	Pro	Asp	Ala	Glu	Leu
		260						265					270		
His	Ile	Phe	Arg	Val	Phe	Thr	Asn	Asn	Gln	Val	Ser	Tyr	Thr	Ser	Trp
	275						280					285			
Phe	Leu	Asp	Ala	Phe	Asn	Tyr	Ala	Ile	Leu	Lys	Lys	Ile	Asp	Val	Leu
	290					295					300				

Asn Leu Ser Ile Gly Gly Pro Asp Phe Met Asp His Pro Phe Val Asp  
 305 310 315 320  
 Lys Val Trp Glu Leu Thr Ala Asn Asn Val Ile Met Val Ser Ala Ile  
 325 330 335  
 Gly Asn Asp Gly Pro Leu Tyr Gly Thr Leu Asn Asn Pro Ala Asp Gln  
 340 345 350  
 Met Asp Val Ile Gly Val Gly Gly Ile Asp Phe Glu Asp Asn Ile Ala  
 355 360 365  
 Arg Phe Ser Ser Arg Gly Met Thr Thr Trp Glu Leu Pro Gly Gly Tyr  
 370 375 380  
 Gly Arg Met Lys Pro Asp Ile Val Thr Tyr Gly Ala Gly Val Arg Gly  
 385 390 395 400  
 Ser Gly Val Lys Gly Gly Cys Arg Ala Leu Ser Gly Thr Ser Val Ala  
 405 410 415  
 Ser Pro Val Val Ala Gly Ala Val Thr Leu Leu Val Ser Thr Val Gln  
 420 425 430  
 Lys Arg Glu Leu Val Asn Pro Ala Ser Met Lys Gln Ala Leu Ile Ala  
 435 440 445  
 Ser Ala Arg Arg Leu Pro Gly Val Asn Met Phe Glu Gln Gly His Gly  
 450 455 460  
 Lys Leu Asp Leu Leu Arg Ala Tyr Gln Ile Leu Asn Ser Tyr Lys Pro  
 465 470 475 480  
 Gln Ala Ser Leu Ser Pro Ser Tyr Ile Asp Leu Thr Glu Cys Pro Tyr  
 485 490 495  
 Met Trp Pro Tyr Cys Ser Gln Pro Ile Tyr Tyr Gly Gly Met Pro Thr  
 500 505 510  
 Val Val Asn Val Thr Ile Leu Asn Gly Met Gly Val Thr Gly Arg Ile  
 515 520 525  
 Val Asp Lys Pro Asp Trp Gln Pro Tyr Leu Pro Gln Asn Gly Asp Asn  
 530 535 540  
 Ile Glu Val Ala Phe Ser Tyr Ser Ser Val Leu Trp Pro Trp Ser Gly  
 545 550 555 560  
 Tyr Leu Ala Ile Ser Ile Ser Val Thr Lys Lys Ala Ala Ser Trp Glu  
 565 570 575  
 Gly Ile Ala Gln Gly His Val Met Ile Thr Val Ala Ser Pro Ala Glu  
 580 585 590  
 Thr Glu Ser Lys Asn Gly Ala Glu Gln Thr Ser Thr Val Lys Leu Pro  
 595 600 605  
 Ile Lys Val Lys Ile Ile Pro Thr Pro Pro Arg Ser Lys Arg Val Leu  
 610 615 620

Trp Asp Gln Tyr His Asn Leu Arg Tyr Pro Pro Gly Tyr Phe Pro Arg  
 625 630 635 640  
 Asp Asn Leu Arg Met Lys Asn Asp Pro Leu Asp Trp Asn Gly Asp His  
 645 650 655  
 Ile His Thr Asn Phe Arg Asp Met Tyr Gln His Leu Arg Ser Met Gly  
 660 665 670  
 Tyr Phe Val Glu Val Leu Gly Ala Pro Phe Thr Cys Phe Asp Ala Ser  
 675 680 685  
 Gln Tyr Gly Thr Leu Leu Met Val Asp Ser Glu Glu Glu Tyr Phe Pro  
 690 695 700  
 Glu Glu Ile Ala Lys Leu Arg Arg Asp Val Asp Asn Gly Leu Ser Leu  
 705 710 715 720  
 Val Ile Phe Ser Asp Trp Tyr Asn Thr Ser Val Met Arg Lys Val Lys  
 725 730 735  
 Phe Tyr Asp Glu Asn Thr Arg Gln Trp Trp Met Pro Asp Thr Gly Gly  
 740 745 750  
 Ala Asn Ile Pro Ala Leu Asn Glu Leu Leu Ser Val Trp Asn Met Gly  
 755 760 765  
 Phe Ser Asp Gly Leu Tyr Glu Gly Glu Phe Thr Leu Ala Asn His Asp  
 770 775 780  
 Met Tyr Tyr Ala Ser Gly Cys Ser Ile Ala Lys Phe Pro Glu Asp Gly  
 785 790 795 800  
 Val Val Ile Thr Gln Thr Phe Lys Asp Gln Gly Leu Glu Val Leu Lys  
 805 810 815  
 Gln Glu Thr Ala Val Val Glu Asn Val Pro Ile Leu Gly Leu Tyr Gln  
 820 825 830  
 Ile Pro Ala Glu Gly Gly Gly Arg Ile Val Leu Tyr Gly Asp Ser Asn  
 835 840 845  
 Cys Leu Asp Asp Ser His Arg Gln Lys Asp Cys Phe Trp Leu Leu Asp  
 850 855 860  
 Ala Leu Leu Gln Tyr Thr Ser Tyr Gly Val Thr Pro Pro Ser Leu Ser  
 865 870 875 880  
 His Ser Gly Asn Arg Gln Arg Pro Pro Ser Gly Ala Gly Ser Val Thr  
 885 890 895  
 Pro Glu Arg Met Glu Gly Asn His Leu His Arg Tyr Ser Lys Val Leu  
 900 905 910  
 Glu Ala His Leu Gly Asp Pro Lys Pro Arg Pro Leu Pro Ala Cys Pro  
 915 920 925  
 Arg Leu Ser Trp Ala Lys Pro Gln Pro Leu Asn Glu Thr Ala Pro Ser  
 930 935 940



Asn Leu Trp Lys His Gln Lys Leu Leu Ser Ile Asp Leu Asp Lys Val  
 945 950 955 960  
 Val Leu Pro Asn Phe Arg Ser Asn Arg Pro Gln Val Arg Pro Leu Ser  
 965 970 975  
 Pro Gly Glu Ser Gly Ala Trp Asp Ile Pro Gly Gly Ile Met Pro Gly  
 980 985 990  
 Arg Tyr Asn Gln Glu Val Gly Gln Thr Ile Pro Val Phe Ala Phe Leu  
 995 1000 1005  
 Gly Ala Met Val Val Leu Ala Phe Phe Val Val Gln Ile Asn Lys Ala  
 1010 1015 1020  
 Lys Ser Arg Pro Lys Arg Arg Lys Pro Arg Val Lys Arg Pro Gln Leu  
 1025 1030 1035 1040  
 Met Gln Gln Val His Pro Pro Lys Thr Pro Ser Val  
 1045 1050

<210> 209  
 <211> 280  
 <212> PRT  
 <213> Homo sapiens

<400> 209  
 Arg Ala Ile Pro Arg Gln Val Ala Gln Thr Leu Gln Ala Asp Val Leu  
 1 5 10 15  
 Trp Gln Met Gly Tyr Thr Gly Ala Asn Val Arg Val Ala Val Phe Asp  
 20 25 30  
 Thr Gly Leu Ser Glu Lys His Pro His Phe Lys Asn Val Lys Glu Arg  
 35 40 45  
 Thr Asn Trp Thr Asn Glu Arg Thr Leu Asp Asp Gly Leu Gly His Gly  
 50 55 60  
 Thr Phe Val Ala Gly Val Ile Ala Ser Met Arg Glu Cys Gln Gly Phe  
 65 70 75 80  
 Ala Pro Asp Ala Glu Leu His Ile Phe Arg Val Phe Thr Asn Asn Gln  
 85 90 95  
 Val Ser Tyr Thr Ser Trp Phe Leu Asp Ala Phe Asn Tyr Ala Ile Leu  
 100 105 110  
 Lys Lys Ile Asp Val Leu Asn Leu Ser Ile Gly Gly Pro Asp Phe Met  
 115 120 125  
 Asp His Pro Phe Val Asp Lys Val Trp Glu Leu Thr Ala Asn Asn Val  
 130 135 140  
 Ile Met Val Ser Ala Ile Gly Asn Asp Gly Pro Leu Tyr Gly Thr Leu  
 145 150 155 160  
 Asn Asn Pro Ala Asp Gln Met Asp Val Ile Gly Val Gly Gly Ile Asp



1	5	10	15
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<210> 213  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 213  
 Gly Ser Ala Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val  
 1                      5                      10                      15

<210> 214  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 214  
 Gly Ser Ile Ala Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val  
 1                      5                      10                      15

<210> 215  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 215  
 Gly Ser Ile Ser Ala Pro Ala Arg Tyr Ala Asn Ala Met Ala Val  
 1                      5                      10                      15

<210> 216  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 216  
 Gly Ser Ile Ser Tyr Ala Ala Arg Tyr Ala Asn Ala Met Ala Val  
 1                      5                      10                      15

<210> 217  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 217  
Gly Ser Ile Ser Tyr Pro Ala Ala Tyr Ala Asn Ala Met Ala Val  
1 5 10 15

<210> 218  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 218  
Gly Ser Ile Ser Tyr Pro Ala Arg Ala Ala Asn Ala Met Ala Val  
1 5 10 15

<210> 219  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 219  
Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Ala Ala Met Ala Val  
1 5 10 15

<210> 220  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 220  
Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Ala Ala Val  
1 5 10 15

<210> 221  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 221  
Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Ala  
1 5 10 15

<210> 222  
 <211> 15  
 <212> PRT  
 <213> Humicola insolens

<400> 222  
 Pro Gly Gly Val Ala Tyr Ser Cys Ala Asp Gln Thr Pro Trp Ala  
           1                  5                  10                  15

<210> 223  
 <211> 15  
 <212> PRT  
 <213> Humicola insolens

<400> 223  
 Cys Gly Trp Ala Lys Lys Ala Pro Val Asn Gln Pro Val Phe Ser  
           1                  5                  10                  15

<210> 224  
 <211> 276  
 <212> PRT  
 <213> Humicola insolens

<400> 224  
 Met Arg Ser Ser Pro Leu Leu Pro Ser Ala Val Val Ala Ala Leu Pro  
           1                  5                  10                  15

Val Leu Ala Leu Ala Ala Asp Gly Arg Ser Thr Arg Tyr Trp Asp Cys  
                   20                  25                  30

Cys Lys Pro Ser Cys Gly Trp Ala Lys Lys Ala Pro Val Asn Gln Pro  
                   35                  40                  45

Val Phe Ser Cys Asn Ala Asn Phe Gln Arg Ile Thr Asp Phe Asp Ala  
           50                  55                  60

Lys Ser Gly Cys Glu Pro Gly Gly Val Ala Tyr Ser Cys Ala Asp Gln  
           65                  70                  75                  80

Thr Pro Trp Ala Val Asn Asp Asp Phe Ala Leu Gly Phe Ala Ala Thr  
                   85                  90                  95

Ser Ile Ala Gly Ser Asn Glu Ala Gly Trp Cys Cys Ala Cys Tyr Glu  
                   100                  105                  110

Leu Thr Phe Thr Ser Gly Pro Val Ala Gly Lys Lys Met Val Val Gln  
           115                  120                  125

Ser Thr Ser Thr Gly Gly Asp Leu Gly Ser Asn His Phe Asp Leu Asn  
           130                  135                  140

Ile Pro Gly Gly Gly Val Gly Ile Phe Asp Gly Cys Thr Pro Gln Phe  
           145                  150                  155                  160

Gly Gly Leu Pro Gly Gln Arg Tyr Gly Gly Ile Ser Ser Arg Asn Glu  
                   165                  170                  175

Cys Asp Arg Phe Pro Asp Ala Leu Lys Pro Gly Cys Tyr Trp Arg Phe

180                      185                      190  
 Asp Trp Phe Lys Asn Ala Asp Asn Pro Ser Phe Ser Phe Arg Gln Val  
           195                      200                      205  
 Gln Cys Pro Ala Glu Leu Val Ala Arg Thr Gly Cys Arg Arg Asn Asp  
           210                      215                      220  
 Asp Gly Asn Phe Pro Ala Val Gln Ile Pro Ser Ser Ser Thr Ser Ser  
           225                      230                      235                      240  
 Pro Val Asn Gln Pro Thr Ser Thr Ser Thr Thr Ser Thr Ser Thr Thr  
                           245                      250                      255  
 Ser Ser Pro Pro Val Gln Pro Thr Thr Pro Ser Gly Cys Thr Ala Glu  
                           260                      265                      270  
 Arg Trp Ala Gln  
                           275

<210> 225  
 <211> 18  
 <212> PRT  
 <213> Thermomyces lanuginosus

<400> 225  
 Gly Asp Val Thr Gly Phe Leu Ala Leu Asp Asn Thr Asn Lys Leu Ile  
           1                      5                      10                      15

Val Leu

<210> 226  
 <211> 15  
 <212> PRT  
 <213> Thermomyces lanuginosus

<400> 226  
 Ser Ile Glu Asn Trp Ile Gly Asn Leu Asn Phe Asp Leu Lys Glu  
           1                      5                      10                      15

<210> 227  
 <211> 291  
 <212> PRT  
 <213> Thermomyces lanuginosus

<400> 227  
 Met Arg Ser Ser Leu Val Leu Phe Phe Val Ser Ala Trp Thr Ala Leu  
           1                      5                      10                      15

Ala Ser Pro Ile Arg Arg Glu Val Ser Gln Asp Leu Phe Asn Gln Phe  
                           20                      25                      30

Asn Leu Phe Ala Gln Tyr Ser Ala Ala Ala Tyr Cys Gly Lys Asn Asn  
           35                      40                      45

Asp Ala Pro Ala Gly Thr Asn Ile Thr Cys Thr Gly Asn Ala Cys Pro

50	55	60
Glu Val Glu Lys Ala Asp 65	Ala Thr Phe Leu Tyr 70	Ser Phe Glu Asp Ser 75 80
Gly Val Gly Asp Val Thr Gly Phe Leu Ala 85	Leu Asp Asn Thr Asn Lys 90 95	
Leu Ile Val Leu Ser Phe Arg Gly Ser Arg Ser Ile Glu Asn Trp Ile 100	105	110
Gly Asn Leu Asn Phe Asp Leu Lys Glu Ile Asn Asp Ile Cys Ser Gly 115	120	125
Cys Arg Gly His Asp Gly Phe Thr Ser Ser Trp Arg Ser Val Ala Asp 130	135	140
Thr Leu Arg Gln Lys Val Glu Asp Ala Val Arg Glu His Pro Asp Tyr 145	150	155 160
Arg Val Val Phe Thr Gly His Ser Leu Gly Gly Ala Leu Ala Thr Val 165	170	175
Ala Gly Ala Asp Leu Arg Gly Asn Gly Tyr Asp Ile Asp Val Phe Ser 180	185	190
Tyr Gly Ala Pro Arg Val Gly Asn Arg Ala Phe Ala Glu Phe Leu Thr 195	200	205
Val Gln Thr Gly Gly Thr Leu Tyr Arg Ile Thr His Thr Asn Asp Ile 210	215	220
Val Pro Arg Leu Pro Pro Arg Glu Phe Gly Tyr Ser His Ser Ser Pro 225	230	235 240
Glu Tyr Trp Ile Lys Ser Gly Thr Leu Val Pro Val Thr Arg Asn Asp 245	250	255
Ile Val Lys Ile Glu Gly Ile Asp Ala Thr Gly Gly Asn Asn Gln Pro 260	265	270
Asn Ile Pro Asp Ile Pro Ala His Leu Trp Tyr Phe Gly Leu Ile Gly 275	280	285
Thr Cys Leu 290		

<210> 228  
 <211> 15  
 <212> PRT  
 <213> Streptomyces plicatus

<400> 228  
 Ile Lys Val Leu Leu Ser Val Leu Gly Asn His Gln Gly Ala Gly  
 1 5 10 15

<210> 229  
 <211> 313

<212> PRT

<213> Streptomyces plicatus

<400> 229

Met Phe Thr Pro Val Arg Arg Arg Val Arg Thr Ala Ala Leu Ala Leu  
1 5 10 15

Ser Ala Ala Ala Ala Leu Val Leu Gly Ser Thr Ala Ala Ser Gly Ala  
20 25 30

Ser Ala Thr Pro Ser Pro Ala Pro Ala Pro Ala Pro Val Lys  
35 40 45

Gln Gly Pro Thr Ser Val Ala Tyr Val Glu Val Asn Asn Asn Ser Met  
50 55 60

Leu Asn Val Gly Lys Tyr Thr Leu Ala Asp Gly Gly Gly Asn Ala Phe  
65 70 75 80

Asp Val Ala Val Ile Phe Ala Ala Asn Ile Asn Tyr Asp Thr Gly Thr  
85 90 95

Lys Thr Ala Tyr Leu His Phe Asn Glu Asn Val Gln Arg Val Leu Asp  
100 105 110

Asn Ala Val Thr Gln Ile Arg Pro Leu Gln Gln Gln Gly Ile Lys Val  
115 120 125

Leu Leu Ser Val Leu Gly Asn His Gln Gly Ala Gly Phe Ala Asn Phe  
130 135 140

Pro Ser Gln Gln Ala Ala Ser Ala Phe Ala Lys Gln Leu Ser Asp Ala  
145 150 155 160

Val Ala Lys Tyr Gly Leu Asp Gly Val Asp Phe Asp Asp Glu Tyr Ala  
165 170 175

Glu Tyr Gly Asn Asn Gly Thr Ala Gln Pro Asn Asp Ser Ser Phe Val  
180 185 190

His Leu Val Thr Ala Leu Arg Ala Asn Met Pro Asp Lys Ile Ile Ser  
195 200 205

Leu Tyr Asn Ile Gly Pro Ala Ala Ser Arg Leu Ser Tyr Gly Gly Val  
210 215 220

Asp Val Ser Asp Lys Phe Asp Tyr Ala Trp Asn Pro Tyr Tyr Gly Thr  
225 230 235 240

Trp Gln Val Pro Gly Ile Ala Leu Pro Lys Ala Gln Leu Ser Pro Ala  
245 250 255

Ala Val Glu Ile Gly Arg Thr Ser Arg Ser Thr Val Ala Asp Leu Ala  
260 265 270

Arg Arg Thr Val Asp Glu Gly Tyr Gly Val Tyr Leu Thr Tyr Asn Leu  
275 280 285

Asp Gly Gly Asp Arg Thr Ala Asp Val Ser Ala Phe Thr Arg Glu Leu  
290 295 300



Tyr Gly Ser Glu Ala Val Arg Thr Pro  
305 310

<210> 230  
<211> 15  
<212> PRT  
<213> Bacillus amyloliquefaciens

<400> 230  
Gly Thr Val Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly Val  
1 5 10 15

<210> 231  
<211> 15  
<212> PRT  
<213> Bacillus amyloliquefaciens

<400> 231  
Asn Gly Ile Glu Trp Ala Ile Ala Asn Asn Met Asp Val Ile Asn  
1 5 10 15

<210> 232  
<211> 15  
<212> PRT  
<213> Bacillus lentus

<400> 232  
Thr Gly Ser Gly Val Lys Val Ala Val Leu Asp Thr Gly Ile Ser  
1 5 10 15

<210> 233  
<211> 15  
<212> PRT  
<213> Bacillus lentus

<400> 233  
Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala Ser Gly Ser  
1 5 10 15

<210> 234  
<211> 17  
<212> PRT  
<213> Bacillus lentus

<400> 234  
Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val Gly  
1 5 10 15

Ala

<210> 235  
<211> 15

<212> PRT

<213> Bacillus lentus

<400> 235

Gly Ala Gly Leu Asp Ile Val Ala Pro Gly Val Asn Val Gln Ser  
1 5 10 15

<210> 236

<211> 272

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Hybrid of  
Bacillus lentus and Bacillus amyloliquefaciens

<400> 236

Ala Gln Ser Val Pro Trp Gly Ile Ser Arg Val Gln Ala Pro Ala Ala  
1 5 10 15

His Asn Arg Gly Leu Thr Gly Ser Gly Val Lys Val Ala Val Leu Asp  
20 25 30

Thr Gly Ile Ser Thr His Pro Asp Leu Asn Ile Arg Gly Gly Ala Ser  
35 40 45

Phe Val Pro Gly Glu Pro Ser Thr Gln Asp Gly Asn Gly His Gly Thr  
50 55 60

His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu  
65 70 75 80

Gly Val Ala Pro Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala  
85 90 95

Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly Leu Glu Trp Ala  
100 105 110

Gly Asn Asn Gly Met His Val Ile Asn Met Ser Leu Gly Gly Ser Gly  
115 120 125

Ser Ala Ala Leu Lys Ala Ala Val Asp Lys Ala Val Ala Ser Gly Val  
130 135 140

Val Val Val Ala Ala Ala Gly Asn Glu Gly Thr Ser Gly Ser Ser Ser  
145 150 155 160

Thr Val Gly Tyr Pro Gly Lys Tyr Pro Ser Val Ile Ala Val Gly Ala  
165 170 175

Val Asp Ser Ser Asn Gln Arg Ala Ser Phe Ser Ser Val Gly Pro Glu  
180 185 190

Leu Asp Val Met Ala Pro Gly Val Ser Ile Gln Ser Thr Leu Pro Gly  
195 200 205

Asn Lys Tyr Gly Ala Tyr Asn Gly Thr Ser Met Ala Ser Pro His Val  
210 215 220

Ala Gly Ala Ala Ala Leu Ile Leu Ser Lys His Pro Asn Trp Thr Asn  
225 230 235 240

Thr Gln Val Arg Ser Ser Leu Glu Asn Thr Thr Thr Lys Leu Gly Asp  
245 250 255

Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Gln Ala Ala Ala Gln  
260 265 270

<210> 237

<211> 15

<212> PRT

<213> Bacillus lentis subtilisin

<400> 237

Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly Val Ala Pro  
1 5 10 15

<210> 238

<211> 18

<212> PRT

<213> Bacillus lentis subtilisin

<400> 238

Leu Glu Trp Ala Gly Asn Asn Gly Met His Val Ala Asn Leu Ser Leu  
1 5 10 15  
Gly Ser

<210> 239

<211> 15

<212> PRT

<213> Bacillus amyloliquefaciens subtilisin

<400> 239

Val Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly Val Ala Pro  
1 5 10 15

<210> 240

<211> 17

<212> PRT

<213> Bacillus amyloliquefaciens subtilisin

<400> 240

Ile Glu Trp Ala Ile Ala Asn Asn Met Asp Val Ile Asn Met Ser Leu  
1 5 10 15  
Gly

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